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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/702,379	10/31/2000	Ronald A. Askeland	10002282-1	5283

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Hewlett-Packard Company  
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EXAMINER

PARK, CHAN S

ART UNIT	PAPER NUMBER
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2622

DATE MAILED: 05/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/702,379

Applicant(s)

ASKELAND ET AL.

Examiner

CHAN S. PARK

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 29 October 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

***Response to Amendment***

1. Applicant's amendment was received on 10/29/04, and has been entered and made of record. Currently, **claims 1-20** are pending.

***Specification***

2. The corrected or substitute specification was received on 10/29/04. The specification is acceptable.

***Response to Arguments***

3. Applicant's arguments with respect to claims 1-20 have been considered but are moot in view of the new ground(s) of rejection.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-12 and 14-17 are rejected under 35 U.S.C. 102(e) as being anticipated by Askren U.S. Patent No. 6,350,004.

4. With respect to claim 1, Askren discloses a printhead for correcting systematic printing errors (fig. 1) comprising:

an inkjet ejection driver head (14) having a distributive processor (18) integrated within the ink ejection driver head; and

a correction scheme programmed into distributive processor, wherein the correction scheme includes intentionally misaligned the ejected ink drops to compensate for known systematic ink drop printing errors (col. 5, line 46 – col. 6, line 57).

5. With respect to claim 2, Askren discloses the printhead of claim 1, wherein the correction scheme corrects systematic ink drop replacement errors of the printhead (col. 5, line 46 – col. 6, line 57).

6. With respect to claim 3, Askren discloses the printhead of claim 1, further comprising a general correction scheme generated during manufacturing of a class of inkjet printheads (col. 5, lines 55-57).

7. With respect to claim 4, Askren discloses the printhead of claim 3, wherein the general correction scheme includes corrections that cover additional errors that exist (col. 5, line 65 – col. 6, line 35).

8. With respect to claim 5, Askren discloses the printhead of claim 1, further comprising a general correction scheme generated during manufacturing of individual inkjet printheads (col. 5, lines 55-57).

9. With respect to claim 6, Askren discloses the printhead of claim 5, wherein the general correction scheme includes corrections that cover additional errors that exist (col. 5, line 65 – col. 6, line 35).

10. With respect to claim 7, Askren discloses the printhead of claim 1, wherein the correction scheme is controlled by a printer driver as software operating on a computer system that is connected to the printhead (col. 6, lines 31-35).

11. With respect to claim 8, Askren discloses the printhead of claim 1, wherein the correction scheme is preprogrammed as firmware and incorporate into a controller connected to the printhead (col. 6, lines 31-35).

12. With respect to claim 9, Askren discloses the printhead of claim 1, wherein the correction scheme is encoded on a memory device incorporated into printhead (col. 6, lines 38-31).

13. With respect to claim 10, Askren discloses the printhead of claim 1, wherein the correction scheme is generated at the time of at least one of printhead manufacturing or printhead operation (col. 5, lines 46-64).

14. With respect to claim 11, Askren teaches a method for correcting systematic printing errors of an inkjet printhead, comprising:

determining systematic errors that are associated with the printhead with an ink ejection driver head having a distributive processor integrated within the ink ejection driver head (col. 5, line 55 – col. 6, line 13);

recording and storing the systematic errors (col. 5, line 55 – col. 6, line 13);

generating a correction scheme to correct the systematic errors (col. 5, line 55 – col. 6, line 13); and

applying the correction scheme to the printhead during printing operations, wherein the correction scheme includes intentionally misaligning the ejected ink drops to compensate for known systematic ink drop printing errors (fig. 1 & col. 6, lines 28-57).

15. With respect to claim 12, Askren teaches the method of claim 11, wherein the correction scheme is generated as a compensation operation that corrects alignment ink drop errors by instructing the printhead to strategically misaligning the ink drops during normal operation of the printer (fig. 1 & col. 6, lines 28-57).

16. With respect to claim 14, Askren teaches the method of claim 11, wherein generating a correction scheme includes printing an alignment plot, examining the alignment plot to determine the correct alignment for main ink drops and storing the

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correct alignment in a memory device, wherein examining the alignment plot includes at least one of automatically examining the plot with an alignment sensor or manually examining the plot by a user (col. 5, lines 46-64).

17. With respect to claim 15, Askren teaches the method of claim 14, further comprising, before a printing operation, reading the systematic errors and using the correct alignment data to eject ink drops during a printing operation that are intentionally misaligned to compensate for the systematic errors (col. 6, lines 28-35). Note that the determination is done for both odd/even firing groups/pixels.

18. With respect to claim 16, Askren teaches the method of claim 11, wherein generating a correction scheme includes firing droplet and examining the droplets during flight to determine the correct alignment for main ink drops and storing the corrected alignment in a memory device (col. 5, lines 46-64).

19. With respect to claim 17, Askren teaches the method of claim 16, further comprising, before a printing operation, reading the systematic errors and using the correct alignment data to eject ink drops during a printing operation that are intentionally misaligned to compensate for the systematic errors (col. 6, lines 28-35).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Askren as applied to claim 11 above, and further in view of Fujita et al. U.S. Patent No. 6,733,100 (hereinafter Fujita).

20. With respect to claim 13, Askren teaches the method of claim 11, but it does not teach expressly that the method for determining systematic errors that are associated with the printhead includes determining odd/even alignment offsets for the printhead.

Fujita, the same field of endeavor of compensating the printhead alignment error, teaches a method for correcting systematic printing errors of an inkjet printhead, comprising:

determining systematic errors that are associated with the printhead with an ink ejection driver head a distributive processor integrated within the ink ejection driver head (col. 7, lines 7-22 and col. 19, lines 3-58), wherein determining systematic errors that are associated with the printhead includes determining odd/even alignment offsets for the printhead (col. 15, lines 11-13 and col. 17, lines 1-22).

At the time of the invention, it would have been obvious to one of ordinary skill in the art to implement the method for determining odd/even alignment offsets for the printhead of Fujita into the printhead error compensating system of Askren.

The suggestion/motivation for doing so would have been to provide independent control methods for even- and odd-numbered nozzles (col. 21, lines 9-15 of Fujita).

Therefore, it would have been obvious to combine Askren with Fujita to obtain the invention as specified in claim 13.



Claims 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Askren in view of Fujita.

21. With respect to claim 18, Askren discloses an inkjet printing system (fig. 1) comprising:

- a controller (11);

- a printhead assembly (14) in communication with the controller and having a distributive processor (18) integrated with an ink ejection driver head; and

- wherein the distributive processor is preprogrammed with a correction scheme that selectively prints ink drops as intentionally misaligned ink drops to compensate for known systematic ink drop errors as instructed by the controller for correcting printed artifacts (col. 5, line 46 – col. 6, line 35).

Askren, however, does not expressly disclose that the printhead assembly is in bi-directional communication with the controller.

Fujita, the same field of endeavor of compensating the printhead alignment error, discloses an inkjet system comprising:

- a controller (figs. 7 & 8); and

- a printhead assembly (figs. 4 & 5) in bi-directional communication with the controller and having a distributive processor integrated with an ink ejection driver head (col. 7, lines 7-22 and col. 19, lines 3-58).

At the time of the invention, it would have been obvious to one of ordinary skill in the art to incorporate the bi-directional communication system of Fujita into the printhead error compensating system of Askren.

The suggestion/motivation for doing so would have been to notify the controller of any errors at the printhead for the appropriate adjustment.

Therefore, it would have been obvious to combine Askren with Fujita to obtain the invention as specified in claim 18.

22. With respect to claim 19, Askren discloses the printing system, further comprising an ink supply providing ink to the printhead assembly (col. 3, lines 50-52). Also refer to fig. 4 of Fujita.

23. With respect to claim 20, Askren discloses the printing system, further comprising:

a media moving mechanism (col. 3, lines 55-57); and

a printhead support mechanism that supports the printhead assembly in relation to the media moving mechanism (col.3, lines 55-61).

Furthermore, Fujita discloses a media moving mechanism (col. 6, lines 33-51); a printhead support mechanism that supports the printhead assembly in relation to the media moving mechanism (M4001); and a removable ink supply container (H1900) fluidically coupled to the printhead assembly for providing ink to the ink ejection driver head (fig. 4).

***Conclusion***

24. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

25. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **CHAN S. PARK** whose telephone number is (571) 272-7409. The examiner can normally be reached on M-F 8am-4:30pm.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Coles can be reached on (571) 272-7402. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

csp  
May 11, 2005

Chan S. Park  
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